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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/339,818 06/25/99 DAVIS

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HM12/0201

EXAMINER

CRANE, I

ART UNIT

PAPER NUMBER

1623

DATE MAILED:

02/01/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/339,818Applicant(s)
Davis et al.Examiner
L. E. CraneGroup Art Unit
1623

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ---3--- MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 10/27/00 (Amdt A)
- ☐ This action is FINAL.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-18, 24-44 and 46 is/are pending in the application.
 - Of the above claim(s) 35-36 and 38-43 is/are withdrawn from consideration.
 - ☐ Claim(s) _____ is/are allowed.
 - ☒ Claim(s) 1-18, 24-34, 37, ~~44~~ and 46 is/are rejected.
 - ☐ Claim(s) _____ is/are objected to.
 - ☐ Claim(s) _____ are subject to restriction or election requirement.
- [x] Claims 19-23 have been cancelled.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
 - ☐ received in Application No. (Series Code/Serial Number) _____
 - ☐ received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s): 8 ☐ Interview Summary, PTO-413
- ☒ Notice of Reference(s) Cited, PTO-892 (2) ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948 ☐ Other _____

Office Action Summary

The Group and/or Art Unit location of your application in the PTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group 1600, Art Unit 1623.

5 Claims 19-23 have been canceled, new claim ~~4~~⁷ has been entered after renumbering as claim 46 (Rule 37 CFR §1.126), and most of the amendments to the claims have been entered as per the amendment of October 27, 2000. The one non-entry was not entered under the authority of 37 CFR §1.121(a)(2)(i)(B)
10 which specifies that no more than five (5) new words can be added to a claim by amendment (i.e. the first amendment at line 1 was entered but the second amendment at line 2 was not entered). Applicant is respectfully requested to resubmit the second amendment to claim 44 in complete claim format with
15 brackets/underlining to specify all deletions and additions.

Claims 1-18, 24-44 and 46 remain in the case.

Claims 35-36 and 38-43 are withdrawn from further consideration by the examiner, 37 C.F.R. §1.142(b), as being drawn to a non-elected invention, the requirement having been
20 traversed in Paper No. 7.

The application contains claims 35-36 and 38-43 drawn to an invention non-elected with traverse in Paper No. 7. A complete response to the final rejection must include cancellation of non-elected claims or other appropriate action (37 C.F.R.
25 §1.144) MPEP §8.21.01.

Claims 1-18, 24-34, 37, 44 and 46 remain under examination in this case.

Claims 1-18, 24-34, 37, 44 and 46 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, lines 4 and 5, the schematic diagrams representing repeating units of "Ia, Ib or combinations thereof" are indefinite for two reasons:

- i) the schematic diagrams do not provide complete information concerning the specific molecular interconnections which are required to understand with particularity the structures of the intended copolymers; and
- ii) the term "polymer comprising" is incorrect when directed to a compound because it implies that there are structural variations not described in the claim. In addressing this rejection applicant is encouraged to use properly enabled and complete chemical structures in place of the schematic figures, or alternatively, properly enabled and complete chemical structures of all starting materials in a product by process claim format.

Applicant's arguments filed October 27, 2000 have been fully considered but they are not persuasive.

Applicant has argued that the generic structures in claim 1 are sufficient citing precedent in support of this view. Examiner respectfully disagrees, noting in particular the following errors and/or inconsistencies which mislead:

i) the definitions of "(Ia)" and "(Ib)" are inconsistent with the structure labeled "(III)" in claim 4 wherein the diradical defined therein is clearly not a cyclodextrin in light of the non-cyclic sugar residue which provides both radical bonding points; and

5 ii) the nomenclature in claim 5 is also inaccurate and misleading because the prefixes "dideoxy" and "didehydro" fail to indicate that the structure is no longer a cyclodextrin and suggest pyran rings with adjacent -(CH-OH)- groups altered to form a group -(HC=CH)- when in fact applicant is referring to
10 the product of periodate cleavage/reduction.

In claim 1, line 5, the terms "C is a substituted or unsubstituted cyclodextrin monomer and A is a comonomer bound to the cyclodextrin" is indefinite for the following reasons:

15 i) the nature of the substituents have not been defined rendering the definition incomplete;
ii) the specific attachment points apparently hinted at by the schematic representations of the cyclodextrin-A moieties have not been defined rendering the definition incomplete; and
20 iii) the comonomer "A" is not further defined in any way rendering the definition incomplete.

Applicant's arguments filed October 27, 2000 have been fully considered but they are not persuasive.

25 Applicant argues that because terms are defined in the specification in a functional manner, that this is sufficient. Examiner respectfully disagrees. Examiner's view is that the definition of terms in the disclosure which are used as shorthand abbreviations in claims must meet the requirements of 35 U.S.C.

5 §112, second paragraph. Examiner has reviewed the definitions cited by applicant and finds that the noted standard has not been met because the definitions are either functional or otherwise incomplete. For this reason the instant rejection has been maintained.

 In claim 3, lines 1-4, the term "cyclodextrin monomer," the chemical formula at line 3 and the Markush group members are technically inconsistent. Did applicant intend the Markush preamble to read

10 -- is selected from diradicals derived from the group consisting of --? If so, examiner suggests that the end of the claim should be amended by addition of the following proviso: -- with the proviso that the linkage-forming radicals are formed at the deoxygenated sites --. A similar problem occurs in claims 4, 5, 28
15 and 29.

 Applicant's arguments filed October 27, 2000 have been fully considered but they are not persuasive.

20 Applicant has recited applicant's view of the term noted and have simply refused to amend the claim. This is deemed to be non-responsive and therefore the instant grounds of rejection have been maintained.

25 Claim 6 is internally inconsistent because some secondary amine functions are show as protonated and with a positive charge, but the hydrazides ("HNNHC(O)-...") are not treated in a similar manner (e.g. -- +H₂NNHC(O)- --). A similar inconsistency problem occurs when the "A" moiety has an imidazole moiety included therein (some are shown protonated

and some are not). Also, the Markush group members are lacking any indication of counter ions rendering the definition incomplete. The same problem reoccurs in claim 30.

5 Applicant's arguments filed October 27, 2000 have been fully considered but they are not persuasive.

10 Applicant argues that everything is OK. If so examiner wonders why the third exemplification at the beginning of line 3 is protonated while the amino group of the 12th exemplification at line 10 is not? And if these should be protonated, then why are the terminal "-NH-" groups of hydrazides (exemplification 5 at line 4) not also protonated as these nitrogens are well known to be as basic or more basic than primary amines? Applicant states incorrectly that "[i]f a nitrogen is joined to four groups, than a quaternary ammonium moiety results and is protonated."
15 This is technically incorrect. A quaternary nitrogen requires 4 alkyl, 4 aryl, or a mixture of a total of 4 alkyl and aryl substituents. The protonated form of an amine is an ammonium ion, but is not a quaternary ammonium ion. Applicant is referred to any competent textbook in organic chemistry.
20 Therefore, in light of applicant's serious technical errors in their arguments and consequent insistence that everything is OK when this is clearly not the case, the instant grounds of rejection have been maintained.

25 In claim 7, the term "A is biodegradable or acid-labile" is functional language not easily translatable into specific chemical structures, thereby rendering the metes and bounds of the instant claim indefinite.

Applicant's arguments filed October 27, 2000 have been fully considered but they are not persuasive.

Applicant's argue that the instant noted language is OK because it is well known that cyclodextrins are both acid labile and biodegradable. These are not limitations with any weight when the independent claim is directed to a chemical structure which is also functionally defined. Therefore, the instant terms are deemed to be not further limiting of the independent claim and therefore the claim is entirely superfluous and should be canceled.

In claim 8, line 2, the term "crosslinked to a polymer" begs the question "how?" or more specifically, "with what included functionality?" or "with what type of crosslinking reagent interacting with which included functionality?" The same problem reoccurs in claim 13.

Applicant's arguments filed October 27, 2000 have been fully considered but they are not persuasive.

Applicant again refers to functional definitions of the invention without addressing the key problem, the failure to provide the ordinary practitioner with a clear definition of the chemical structures being synthesized and a clear definition of how this is accomplished. Applicant appears to be "hiding the ball." not a good strategy to follow, particularly in view of the CAFC present policies concerning 112 issues. Applicant is reminded that a clear and complete definition of the invention being claimed is an important element in the patent bargain, an element which the instant claims do not presently meet. For

these reasons the instant grounds of rejection have been maintained.

5 In claims 9 and 10, line 1, the term "at least one ligand is bound to the linear cyclodextrin copolymer" implies subject matter ("ligand") which is open to various interpretations. For example, cyclodextrins are known as ligands capable of complexing compounds within their cavities. Cyclodextrins are also known to possess large number of hydroxyl moieties which can cooperatively render the cyclodextrin a ligand for metals, metal complexes, and/or metal ions capable of coordination simultaneously with one or more hydroxyl moieties. Or, the claim may be referring to some appended "ligand" substituent the chemical character of which has not been defined in the claim. Appropriate clarification is respectfully requested. The same problem reoccurs in claims 14, 15 and 31.

15 Applicant's arguments filed October 27, 2000 have been fully considered but they are not persuasive.

20 Applicant again argues that everything is OK but fails to address the issue. This is non-responsive and therefore the instant grounds of rejection have been maintained.

25 In claim 11, lines 1-2, the term "wherein at least one cyclodextrin monomer C is oxidized" is indefinite for failure to specify what is meant by the term "oxidized." It is plain that the cyclodextrin already include hydroxyl moieties which represent partially oxidized carbon substituents so the noted term may be deemed to be entirely superfluous. Alternatively, applicant may have intended a specific additional oxidation product of which

there are numerous possibilities (e.g. in β -cyclodextrin there are 21 primary and secondary hydroxyl groups each of which may become the object of further oxidation). For these reasons, a reading of the noted claim does not permit the ordinary practitioner to be able to distinguish between these alternatives. Applicant is respectfully requested to resolve the noted confusion. The same problem reoccurs in claims 16 and 17.

Applicant's arguments filed October 27, 2000 have been fully considered but they are not persuasive.

Applicant alleges that the response concerns claims 11, 16, 17 and 37 when the rejection of record is limited to claims 11, 16 and 17. Applicant again argues that is it OK to rely on functional language when it is clear that the functional language does not clearly define what is meant, i.e. the question "what part of the cyclodextrin structure has been oxidized and to what degree has it been oxidized?" has not been answered. For this reason the instant grounds of rejection have been maintained.

In claim 12, the "monomer" is -- derived from a cyclodextrin -- but cannot by definition be an independent cyclodextrin compound. A similar problem reoccurs in claim 26.

Applicant's arguments filed October 27, 2000 have been fully considered but they are not persuasive.

Applicant is referred to the statement of the second paragraph of 35 U.S.C. §112 wherein it is stated that patent claims must "... particularly point out and distinctly claim the

subject matter which applicant regards as the invention.”

Examiner is merely asking applicant to use language precisely, i.e. to distinguish between a molecule and a substituent derived therefrom. This distinction is required to clearly state the subject matter being claimed. Because applicant has apparently not understood the request, and applicant's response is beside the point, the instant grounds of rejection have been maintained.

In claim 16, line 1, the term “substantially” is per se indefinite and its deletion is respectfully requested.

Applicant's arguments filed October 27, 2000 have been fully considered but they are not persuasive.

Applicant is advised that the use of the term “substantially” in a claim is not permissible solely because the term has been used in the disclosure. The appropriate definition in the disclosure is also indefinite under 35 U.S.C. §112, second paragraph, and therefore the instant grounds of rejection has been maintained.

In claim 18, the term “therapeutic composition” is non-standard terminology. Did applicant intend the format to be -- A pharmaceutical composition comprising a cyclodextrin oligomer of any one of claims 19, 20, 21, or 22, a {second active ingredient} and a pharmaceutically acceptable carrier.--? If so applicant is respectfully requested to substitute or amend as appropriate, and to make the claim complete to specify the additional active ingredient (“therapeutic agent”) or a Markush group from which it may be selected.

Applicant's arguments filed October 27, 2000 have been fully considered but they are not persuasive.

Applicant again insists everything is OK and that the instant claim is properly complete and definite. Examiner respectfully disagrees. Applicant is attempting to claim subject matter with functional language and as a consequence has produced a claim without well defined metes and bounds. When applicant amends the claim to be a pharmaceutical composition claim (cyclodextrin copolymer + carrier), a claim which the term "comprising" would read on all compositions including the polymer and any active ingredient, then applicant will be moving in the direction of allowable subject matter. Until this happens, the instant grounds of rejection will be maintained.

In claim 24, the entire process is described in functional language using schematic representations of the products. The metes and bonds will become reasonably clear when applicant provides real molecular starting materials in the form of complete chemical structures (with "the same or different leaving group[s]" specified !!) within the instant claim or a replacement therefore.

Applicant's arguments filed October 27, 2000 have been fully considered but they are not persuasive.

Applicant argues that in view of the right to be one's own lexicographer, that the instant noted claim is OK. Examiner respectfully disagrees. The noted "right" does not trump the requirements of 35 USC §112, second paragraph. When applicant is prepared to provide clear and complete chemical structures in the independent claims, then applicant will be

moving toward allowable claims. As applicant has not yet moved in that direction, the instant grounds of rejection have been maintained.

5 In claim 25, applicant again resorts to schematic representations. Complete molecular structures are respectfully requested. In addition, the noted claim lacks proper terminal punctuation, and lacks punctuation to separate structures (IVa) and (IVb). Claims 32-34 by their dependence on claim 25 inherently have the same problem.

10 Applicant's arguments filed October 27, 2000 have been fully considered but they are not persuasive.

See response immediately above.

15 Claim 37 by its reliance on terms already noted as functional and therefore indefinite has the same problems noted above in rejections directed to the terms "ligand" and "oxidized."

Applicant's arguments filed October 27, 2000 have been fully considered but they are not persuasive.

See responses to the use of these terms in previous portions of this Office action.

20 Claims 1-18, 24-34, 37, 44 and 46 are rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one of ordinary skill in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

5 In claims 1-18, 24-34, 37, 44 and 46 the use of generic terminology like "comonomer" and "cyclodextrin copolymer" implies a far wider scope of subject matter than applicant has enabled within the instant specific embodiments. Applicant is therefore respectfully requested to more nearly limit the scope of the instant claims to the scope of the enabled embodiments.

Applicant's arguments filed October 27, 2000 have been fully considered but they are not persuasive.

10 Applicant in summary argues that because there are some enabled embodiments, that no more enabling disclosure is required to support the instant claims. Examiner respectfully disagrees. Applicant is requested to note the following precedents which appear to be consistent with the CAFC policy directed to claim enablement:

15 a) *Ex parte Balzarini et al.* 21 USPQ 2d 1892, 1894 (1990) which stands for the proposition that prospective enablement where medicinal methods of treatment are concerned is not adequate particularly where the technology has a high degree of unpredictability and no specific test data has been supplied;

20 b) it is well known and established that "law requires that disclosure in an application shall inform those skilled in the art how to use appellant's alleged discovery, not how to find out how to use it for themselves," {*In re Gardner et al.*, 166 USPQ 138 (CCPA 1970)}; and

25 c) *Brenner v. Manson* {148 USPQ 689 (S. Ct. 1966)} which stands for the proposition that a patent is granted to protect the

results of efforts already concluded, as opposed to a grant directed to subject matter which is only prospectively enabled, and therefore that a patent is “...not a hunting license.”

5 Based on the guidance provided above, applicant is respectfully requested to re-define by amendment each of the above claims in a manner which limits the claimed subject matter to the specific embodiments. If applicant is willing to take this step, then it will be possible to discuss what broadening terminology may be added.

10 The non-statutory double patenting rejection, whether of the obviousness-type or non-obviousness-type, is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by
15 a patent. *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Van Ornam*, 686 F. 2d 937, 214 USPQ 761 (CCPA 1982); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir 1985); and *In re Goodman*, 29 USPQ 2d 2010 (Fed. Cir. 1993).

20 A timely filed terminal disclaimer in compliance with 37 C.F.R. § 1.321(b) and (c) may be used to overcome an actual or provisional rejection based on a non-statutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 C.F.R.
25 §1.78(d).

Effective January 1, 1994, a registered attorney or agent or record may sign a terminal disclaimer. A terminal disclaimer

signed by the assignee must fully comply with 37 C.F.R.
§3.73(b).

5 Claims 18, 44 and 46 are rejected under the judicially
created doctrine of obviousness-type double patenting as being
unpatentable over claims 1-20 of copending Application No.
09/453,707. Although the conflicting claims are not identical,
they are not patentably distinct from each other because the
subject matter of the '818 application is so broadly and
indefinitely defined that some, if not all, of the subject matter of
10 the instant application is included within the scope of the '818
claims.

 This is a provisional obviousness-type double patenting
rejection because the conflicting claims have not in fact been
patented.

15 Claims 18, 44 and 46 of this application conflict with claims
1-20 of Application No. 09/453,707. 37 C.F.R. §1.78(b) provides
that when two or more applications filed by the same applicant
contain conflicting claims, elimination of such claims from all but
one application may be required in the absence of good and
20 sufficient reason for their retention during pendency in more
than one application. Applicant is required to either cancel the
conflicting claims from all but one application or maintain a clear
line of demarcation between the applications. See MPEP §822.

25 Applicant's arguments with respect to claims 18, 44 and 46
have been considered but are moot in view of the new grounds of
rejection.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. §102 that form the basis for the rejections under this section made in this Office action:

"A person shall be entitled to a patent unless -

- 5 (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent."
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than
10 one year prior to the date of application for patent in the United States."
- (e) the invention was described in a patent granted on an application to another filed in the United States before the invention thereof by applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of
15 this title before the invention thereof by the applicant for patent."

Claims 1-2, 7-18, 24, 31, 37, 44 and 46 are rejected under 35 U.S.C. §102(e) as being anticipated by **Bachmann et al. '768** (PTO-1449 ref. AA).

20 Applicant is referred to the '768 patent's abstract which refers to "biomedical articles," to column 3, lines 35-39, to column 5, lines 32-36, to column 7, lines 1-3, and to column 7 lines 19-23 and associated explanatory text as containing subject matter which reads directly on the instant claims including "oxidized" cyclodextrins as being an obvious variation following from
25 contact with hydrogen peroxide in the presence of metal ions, a mixture well known to generate hydroxyl radicals, a notoriously well known oxidizing agent.

Applicant's arguments filed October 27, 2000 have been fully considered but they are not persuasive.

When applicant is prepared to provide clear, comprehensive, and complete structural representations of the claimed cyclodextrin-based copolymers in claim 1, in claim 18, and in claim 24, then applicant will have begun to avoid the prior art. Examiner maintains the right to interpret the instant claims broadly for the purpose of influencing applicant's amendments in the direction of claims that clearly avoid the prior art by deleting functional language in favor of structural representations.

Claims 1-3, 7-18, 24, 26-27, 31, 37, 44 and 46 are rejected under 35 U.S.C. §102(b) as being anticipated by Tabushi et al. (PTO-1449 ref. T).

Applicant is referred to p. 1919, Scheme I and Table 1, item "5e" wherein a synthesis and product which read on the instant process and product claims are disclosed.

Applicant's arguments with respect to claims 1-3, 7-18, 24, 26-27, 31, 37, 44 and 46 have been considered but are moot in view of the new grounds of rejection.

The disclosure is objected to because of the following informalities:

At pages 42 and 44, last line of both, the structural representations incorporating a schematic "cyclodextrin" appear to contain pentavalent carbons. The same problem reoccurs at p. 48. Applicant is respectfully requested to amend the instant use of schematic formulas to avoid this obvious technical error.

Appropriate correction is required.

Applicant's arguments filed October 27, 2000 have been fully considered but they are not persuasive.

5 Applicant is respectfully requested to make whatever amendments are properly supportable by the instant disclosure to make the noted figures comport with standard organic chemical structure notation.

10 Papers related to this application may be submitted to Group 1600 via facsimile transmission(FAX). The transmission of such papers must conform with the notice published in the Official Gazette (1096 OG 30, November 15, 1989). The telephone numbers for the FAX machines operated by Group 1600 are (703) 308-4556 and 703-305-3592.

15 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner L. E. Crane whose telephone number is 703-308-4639. The examiner can normally be reached between 9:30 AM and 5:00 PM, Monday through Friday.

20 If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Gary Geist, can be reached at (703)-308-1701.

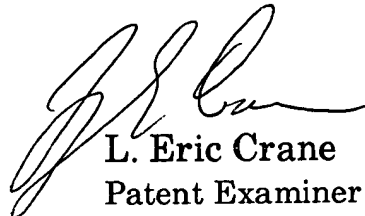
Any inquiry of a general nature or relating to the status of this application should be directed to the Group 1600 receptionist whose telephone number is 703-308-1235.

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Serial No. 09/339,818
Art Unit 1623

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LECrane:lec
01/31/01



L. Eric Crane
Patent Examiner
Group 1600